

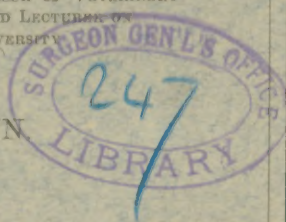
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TRANSMISSION
OF
TUBERCULOSIS
FROM THE
MEAT AND MILK
OF
INFECTED ANIMALS.

BY
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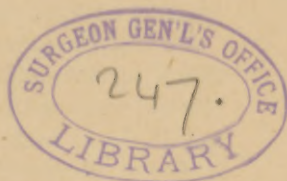
HARTFORD, CONN.



FROM THE THIRD ANNUAL REPORT OF STATE BOARD OF HEALTH.

HARTFORD, CONN.:
PRESS OF THE CASE, LOCKWOOD & BRAINARD CO.
1881.

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presented by author



TRANSMISSION OF TUBERCULOSIS

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Nowhere in the struggle of life, against the manifold causes of disease, do we more effectually imperil our health and happiness than in partaking of animal food of a suspicious character. Hence the relation of man to the lower orders of animals, which has caused so much speculation among philosophers and naturalists on certain zoological affinities, is equally interesting and instructive in a *pathological* point of view. The skeletal framework and internal organization of the higher mammalia are not only morphologically indetical with the structure of man, and thus subserve the same purpose in animal economy; but the blood is similar in chemical composition, contains the same anatomical elements, and is subject to analogous changes in disease; hence the liability of transmitting to the human subject some virulent blood-poison, through the medium of our animal sustenance.

The highest achievement therefore in medical science is the requisite knowledge to point out such causes, rather than vaguely search the *materia medica* for a cure; and there is no theme connected with the science of dietetics more worthy of our daily consideration than the sanitary condition of the meat and milk that we consume. Though many inquiries have been made in this direction, and valuable conclusions reached, yet in this broad field, for scientific research, the accomplished laborers to day are few. But the hour has come when the sanitarian and physician, in response to a public demand, must join hands with the veterinary profession to explore certain realms in the causation of disease, and thus more accurately survey those boundary lines in pathology which now seem to separate the human maladies from those of our food-producing animals.

Consequently, there is no subject of more importance to the pub-

lic health, or better calculated to enhance the cause of sanitary science, than the practical study of this diseased meat question. The very *doubtful* condition of some of our home supplies already indicates the solution of certain vexed questions on the *possible* transmission of tuberculosis, which has long been a stumbling-block to the medical practitioner. The investigation of this subject therefore, in all its varied relations, is a work of vast importance, and one which the age now urgently demands in behalf of human welfare.

Hence it will require, for the achievement of these necessary results, not only the united efforts of professional and scientific men, but the influence of the public press, and the sanction of our state authorities. Then may we hope to see a thorough system of veterinary inspection established in this country that shall have full control of the public markets, and thus examine all suspicious animals before they are allowed to be slaughtered.

INFECTIOUS QUALITIES DEFINED.

The extent to which the different kinds of diseased meat are liable to be used, will depend in a great measure upon the comparative frequency that these infectious maladies occur in a given locality, and the more insidious the nature of the disease the greater the liability of its transmission from animals being slaughtered, that are more or less affected. Hence a brief allusion to the more common forms of infected meat, with a review of some of the pathological conditions involved, will best serve our present purpose, and possibly throw a gleam of sanitary light on this much neglected subject.

All meat, therefore, from whatever source or condition of animal it may come, that would cause sickness, disease, or death in man if partaken as food, must be regarded in the light of sanitary science as *diseased*, and consequently unfit for human use in any form. Accordingly, an article of meat possessing such qualities, must come from an animal afflicted with some form of an infectious malady, the germs of which are contained in the flesh, and are liable to be transmitted.

Hence a disease in which a contagious virus is developed during its course, or a virulent principle generated in the blood, renders the meat from all animals thus affected exceedingly dangerous as an article of food. But meat is not materially affected by the entozoic maladies of animals, unless the parasite in some stage of its

existence makes its abode in the flesh and has not been destroyed by cooking.

In accordance with this definition there are but few diseases that absolutely render these animal supplies perilous to human happiness. Prominent among these may be mentioned malignant anthrax, hydrophobia, tuberculosis, small-pox, and two parasitic affections caused by the *trichina spiralis*, and the measles tape worms. But the other maladies from which our slaughtered animals are liable to have suffered, may greatly impoverish the nutritive quality of the meat, and thus render it unpleasant in taste and general appearance; yet, if the flesh contains no animal poison or other morbid products, no harm can possibly come from its use when served upon our table. And even a diseased article, when thoroughly cooked, may not prove injurious to one whose digestive powers are active.

It is not an easy matter, therefore, in all cases to decide whether meat is possessed of injurious qualities or not, without a careful inquiry into the history of the article, or a microscopic inspection. Trichinous pork is an example of this kind; and of the many fatal cases on record, none of the victims ever suspected the meat until a peculiar form of sickness made its appearance, involving a number of individuals who were known to have partaken of the same. This is also true of black-leg veal many times, and of other fine-looking specimens of meat that are affected with anthrax poison, which is liable to be transmitted.

Many varieties of diseased meat, however, are so palpable that even by the dexterity of the butcher's art it is impossible to disguise them. The tuberculous deposits upon the pleural membrane lining the chest cavity, thus causing the lungs to adhere to the ribs, or along the internal walls of the abdomen, are sufficient evidence to condemn the carcass. Measly pork and beef are also easily detected by the unaided eye; but the parasitic contamination of such meat is often overlooked, and consequently there is always an opportunity for a tape worm to become initiated in all who may partake of it.

TUBERCULOSIS INFECTIOUS.

As this disease is comparatively new to the veterinary profession, its clinical history and pathology has not received that attention which the subject now demands. In fact, few are aware to-day of the extent to which this insidious malady prevails, but the rapid strides

which it has made and the hold it has already gained on our stock, observes a well-known veterinary author, renders it one of the most important questions affecting the well-being of the bovine species.*

The *contagious* nature of tuberculosis, as shown by recent experiments on animals, can no longer be doubted, and it is now conceded by comparative pathologists that the bovine form of this disease is identical with that of man. Consequently there is great liability of its transmission, either by inoculation or ingestion. In fact, it has repeatedly been produced in rabbits, Guinea-pigs, and calves by feeding them with tuberculous matter. Prof. Gerlack of the Berlin Veterinary School claims,† as the result of his researches, that this disease in cattle is very infectious, that the presence of a specific virus is evident, and that even the flesh of such diseased animals under certain circumstances, and also the milk, possesses infective properties, though to a less degree than the cheesy matter from the lungs.

That tuberculosis is now rapidly on the increase no well-informed veterinarian can deny. It ranks among the few great scourges of the land; and though our losses, thus far, in live stock property have been largely due to other plagues which sweep their victims off in a summary manner, yet the ravages of this disease can only be realized, says Prof. Walley,‡ when we take into account the vast deterioration, the slow but certain decimation of many of our best herds, the destruction of our animal supplies, and also the danger to human life which can no longer be considered chimerical. Still there are many who from want of knowledge on the subject may even despise the pathological significance of this fell destroyer and thus ignore its deadly meaning; but when we see thousands of these tubercular deposits in a single slaughtered animal, we are forced to conclude that the use of such meat can in no way promote our healthfulness. Thus we have in every form of tubercle an implacable and destructive foe, and, in fact, there is no other morbid product known that is so *protean* in the number of functional derangements to which it may give rise in the animal economy.

*The Four Bovine Scourges, with an Appendix on the Inspection of Meat, etc., by Thomas Walley, M. C. R. V. S., Principal of the Edinburgh Royal Veterinary College, 1879.

†The Veterinarian, London, March Number, 1875.

‡Op. Cit, page 143.

HEREDITARY TRANSMISSION.

There is evidently a strong pre-disposition in neat stock for the production of tuberculosis, and cattle are far more frequently affected than other domestic animals. The temperament and physical confirmation undoubtedly contribute much to its development; for animals of a phlegmatic type, with an attenuated form, long limbs, and narrow chests are usually the first victims of the malady. Breeders should therefore strive to avoid the possibility of transmitting such diseased qualities. It is more frequent in cows than in oxen, and especially those kept in dairies for a length of time. Hence lactation is believed to be a predisposing cause. The condition also in which animals are kept is no small factor. The cold, damp sheds, the dark, underground stables, and other ill-ventilated abodes, as well as the character of the food, all conspire to rekindle those constitutional taints into morbid activity.

If we inquire further into the causes of the increased susceptibility to the infection, as seen more especially in our thorough-bred stock, we shall find that heredity and multiplied consanguinity play no menial part. Any physical weakness which the sire or dam may possess is liable to be transmitted to the immediate progeny, but if one generation escapes, the trouble may appear in the next, in accordance with the well-established principle of atavism. Diseased conditions are also inherited; and I believe that there is no predisposing cause which exercises such a potent influence in the production of tuberculosis as the pernicious system of in-and-in breeding. Thus from parent to offspring, from one generation to another, we often see the fatal tendency transmitted in unbroken succession, and the more complicated the relationship becomes, the greater is the virulence of the resulting products. In spite, therefore, of the many palpable examples of this broken law, some breeders still pursue, year by year, the suicidal policy of clinging to *one strain*, regardless of the impending consequences.

Hence this insidious and malignant malady, soon to be recognized as *the dreaded* scourge of our land, is now being disseminated in every direction through the consanguineous infection of our thorough-bred stock. And Prof. James Law, F. R. C. V. S., of Cornell University, in alluding to this subject, says, "That the *esteemed* qualities have been preserved, strengthened, and increased in this way there can be no doubt, but there can be just as *little* doubt that any inherited weakness or disease has been often trans-

mitted and even intensified. I could mention particular families in our highest-priced breeds in which *tuberculosis* has become a fixed character;" and further on he observes that "excessive weakness and stupidity of the young is another common result of in-breeding."*

CONTAGIOUS BY CONTACT.

The observations of Dr. Grad, veterinary surgeon at Was-selonne, Alsace, on the spread of this disease by contaminated stalls, are very conclusive. On different occasions owners had informed him that they had lost several animals from consumption *in the same stall*. At first he did not attach much importance to the matter, but one day, when visiting the stables of an extensive farmer in Leinheim, he was informed that annually for the last five years one of the cattle had died of tuberculosis in a certain stall. The last one he had the opportunity of examining, which had been there but ten months, but had all the symptoms of the malady, greatly emaciated, and troubled with a cough. Dr. Grad's attention was strongly aroused at such a state of things, and to test the matter scientifically he was allowed to select an animal for an experiment. Accordingly he chose from another stable, a three-year-old heifer, in calf, that was to all appearances perfectly healthy. She was bred on the farm, had never been unwell, never coughed, and none of her progenitors had ever been affected with phthisis. The cow remained quite well until after calving, when a slight cough appeared; but it increased in frequency, emaciation gradually set in, with all of the symptoms of tuberculosis, and in twelve months the creature was a mere shadow of her former self. The evidence therefore in support of this mode of infection Grad could no longer resist, as this was the sixth case that had occurred in this stall. Hence he very naturally inferred that the disease was probably transmitted by the ingestion of tuberculous matter expectorated by the cattle which had previously occupied the place.

The extension of the malady by cohabitation is therefore always liable to occur when animals are so arranged in the stable that the sick and healthy ones can get their heads together, or feed from the same manger. The hay may thus become contaminated, and the infection takes place through the digestive organs. The expired air also is not unfrequently so laden with virulent matter,

* Report of Am. Public Health Association, New York, 1875, vol. 2, page 250.

especially in the advanced stages, that it is not safe for another animal to inhale it. This mode of transmission, which was first suggested by Dr. Morgagni,* more than a hundred years ago, and has found many advocates among physicians and veterinarians, has now been confirmed by the experiments of Dr. Tappeiner of Meran, in causing animals to inhale the fine particles of tubercular matter from the air of a room in which the virus had been evaporated by a steam atomizer. Out of eleven puppies experimented on, ten showed well-marked miliary tubercle in both lungs on being killed within twenty-five to forty days—thus proving that this disease is contagious by the breath.

VILLEMIN'S INVESTIGATIONS.

In 1865 Prof. Villemin of the Val-de-grace Hospital, Paris, having conceived that human consumption in certain cases might be due to a specific virus introduced into the system, resorted to a series of experiments on animals to test the question. He was the first to demonstrate the contagiousness of tuberculosis by *inoculation*. Rabbits and Guinea-pigs were selected, and the material employed was from the human lung. Inoculations were made in various parts of the body, but the results were uniform and of a serious character. Many of the creatures died, others, lingering in a depressed state, were killed, when well-marked tubercular deposits were found in all, especially in the lungs, and with more or less infiltrations in the other organs, thus showing that the disease had been transmitted.

These results, which gave him so much renown as a pathologist, led him to experiment with tubercular matter from other animals. Desirous, therefore, of testing the nature of the disease in cattle, he inoculated a rabbit with matter from a cow. The animal became emaciated, and in six weeks was destroyed. Its lungs were filled with hard, tubercular masses, and some of them had taken on a cheesy aspect in the center. The other organs of the body were affected in a similar manner as those in the previous experiments. Hence he concludes that bovine phthisis is *identical* with that of man.

Dr. Villemin has likewise demonstrated that the tuberculous matter produced artificially by inoculation possesses the same power of transmissibility as when the malady arises spontaneously.

* See Fossing's able memoir on the history of these investigations in the 48th and 49th Vols. of *The Veterinarian*.

—thus proving conclusively that in tubercle resides a special, elaborated virus which does not lose its identity by several removes, no more than small-pox.

This view of the subject is corroborated by the pathological researches of Dr. Lionel Beale of London, the celebrated microscopist, who declares that tubercle is a minute particle of living matter, and if inoculated under favorable circumstances it is almost sure to grow, multiply, and produce other morbid cells like that from which it was derived. And furthermore, Villemin has always considered tuberculosis a *specific* malady, for he found that a very small wound and an inconsiderable quantity of matter used was a manifest proof that the intensity of the disease is independent of the *quantity* of the matter inoculated, and that the number and extent of the internal lesions have no relations to those at the seat of puncture. A disease, therefore, that can be transmitted from one animal to another by inoculation and thus an identical virus reproduced is, strictly speaking, *contagious*.

CHAUVEAU'S EXPERIMENTS.

Further and more convincing proof of the transmission of bovine tuberculosis has been furnished by Prof. Chauveau, of the Lyons Veterinary School, who for years has been experimentally studying the intimate pathology of the various contagia. The success of his researches has afforded some startling results pertaining to the use of diseased meat. The discovery, also, that certain rich virulent matter can infect as readily through the digestive organs as by any other channel has given him a world-wide reputation; and his well-designed experiments on cattle, which he instituted in 1868, have settled for ever among comparative pathologists the question of the virulency of tuberculosis.

He purchased four calves the 18th of September, from a locality where this disease was unknown, which, upon rigid examination, were found to be in fine, healthy condition. The next day he administered an ounce of tubercular matter from an old cow's lung, including the hard and soft varieties, prepared in the form of a drench and given in divided doses. The first one, a year old, began to lose condition in about a fortnight, the respirations were quickened, though the appetite remained unimpaired. On the 5th of October he gave this calf another dose, but of different and more recent matter, and within a week the symptoms of tuberculosis were apparent. Emaciation proceeded rapidly, the coat be-

came rough and staring, and the animal had occasional fits of coughing, especially after drinking.

The second calf, six months old, had on the fourth day a profuse and fetid diarrhoea, but of short duration, and the animal remained apparently healthy for three weeks. But the characteristic symptoms, as in the other case, soon appeared, with enlargement of the glands about the throat. The third one of the same age, having shown no signs of disease, was drenched again October 9th with another kind of matter, but this calf longest resisted the action of the virus, and not until the 25th was there any appreciable derangement of health: but from that time, however, the phenomena of tubercular infection ensued with amazing rapidity, and in a week the calf could scarcely be recognized.

At the close of the experiments, November 10th, the miserable aspect of the three infected creatures, when contrasted with the thriving condition of the fourth, left no doubt in the mind of even the casual observer as to the changes that had taken place. The post-mortem examinations revealed a perfect generalized form of tuberculosis, with the local lesion of the bowels, *tuberculosis mesenterica*, shown in a marked degree, some of the glands being as large as a man's fist. The morbid deposits in the chest cavity, also, were none the less remarkable. The lungs were studded with crude tubercles, some forty in number, varying in size from a pea to a filbert. The bronchial glands were also involved, but the liver, spleen, and kidneys were not affected.

Thus, in the space of fifty-two days, we have three typical examples, nearly uniform in appearance, of the artificial production of this malignant malady through the digestive organs. In presence of these facts, therefore, I trust that all inquirers after the truth of this matter will be forced to conclude with our illustrious pathologist that the virulence and contagious properties of tuberculosis are now demonstrated beyond a doubt. And the fact that bovine animals have contracted this disease through the agency of the feed gives us an additional source of danger, for creatures confined in the same stable or pasture, and drinking from the same ponds or troughs, are constantly liable to swallow some of this virus in the mucous discharges from the nostrils of their affected comrades. In fact it is never safe to put another animal in the same stall where one has sickened and died of this complaint without thoroughly renovating the apartment. Nor would I allow an affected creature to mingle with the healthy stock about the yard.

DANGERS OF DISEASED MEAT.

The meat from cattle affected with tuberculosis is not unfrequently seen in American markets, especially in our larger cities, and even in country towns. Yet, owing to the lack of public appreciation of any sanitary police measures to control such traffic, little or no complaint is made when we are served with consumptive beef. Seven years ago, after repeated opportunities for observation on this subject, I called public attention to the prevalence of this malignant malady among our dairy stock, that I believed was not generally recognized; and I now affirm with renewed assurance, in a pathological point of view, that the *baneful* consequences to our health from the use of infected meat and milk are not surpassed in the whole catalogue of contagious affections.

Such infected meat, therefore, should not be used; for any organ or texture in which tubercle has been deposited, is surely a dangerous article of food. Much will depend, however, upon the severity of the case and *extent* of the morbid changes that have taken place. Thus, from what is known in relation to the pathology of this virulent malady, we should at once interdict the sale of consumptive beef and milk, especially in the advanced stages of the disease, when the glandular tissues have become involved.

The relation of bovine tuberculosis to public hygiene was probably first suggested by Prof. Chauveau, who thirteen years ago had already indicated the real source of danger from the use of consumptive beef and milk. But no one has done more to promulgate these investigations, or has contributed more to the advancement of sanitary science in this direction, than George Fleming, F. R. C. V. S., Veterinary Inspector to the British army, and the accomplished editor of the London *Veterinary Journal*, who, by his encyclopadic writings, is an acknowledged authority on the subject. Thus, in a recent editorial, he says, "That the tuberculosis of cattle is a *transmissible* disease, and can be conveyed not only to animals of the same but also to those of other species in various ways, is now an *established fact*, upon the recognition of which we have for many years insisted; and, since we first called attention to it, some of the best pathologists in Europe have furnished additional testimony as to the readiness with which this transmission takes place, not only by *inoculation* or *ingestion*, but also, it would appear, by *cohabitation* of diseased with healthy animals.*

* *Veterinary Journal*, December, 1879.

Two years ago Prof. Colin of the Albert Veterinary College, contributed a series of observations on the *communicability* of tuberculosis, which were very conclusive, and threw a flood of light on this important sanitary question in relation to diseased meat. Several prominent German and Italian authorities have also published their clinical experience in this direction; and lastly we have the celebrated Professor Orth of Gottingen, furnishing the results of his researches and experiments. All of these are only confirmatory, however, of what has now been stated, but this confirmation is not without its value, especially in this emergency, when public opinion needs educating on the sanitary conditions of our meat supplies.

In his experiments, fifteen animals were fed with tuberculous matter from a diseased cow, and nine of those were infected, of which four died. The remaining five, becoming extremely emaciated, were killed. On examination nearly all the organs of the body were found involved in tuberculosis. In all the lungs were affected, but the serous and mucous membranes, the lymphatic glands, the liver, spleen, kidneys, and omentum were infected in different degrees. Consequently, the transmissibility of this affection to animals being proved, he insists that its transmission to man is possible, and has undoubtedly many times taken place.

TUBERCULOUS MILK.

The recent investigations of Prof. Otto Bollinger of the University of Munich, on the artificial production of tuberculosis as induced by the consumption of diseased milk, has thrown additional light on the subject. He claims that the milk of such animals has a preeminently *contagious* influence, and reproduces the disease in other animals experimented on from that point of view. He believes also that such milk, even when *boiled*, still retains its injurious properties. Further, he maintains that beyond doubt the tuberculosis of the human subject, though not completely identical with that of the cow, is yet strictly analogous to it, and that consequently the *wide prevalence* of tuberculosis in the native herds, at least 5 per cent. of which are affected, is a standing danger to health of the community.

Seeing the enormous mortality from consumption, more especially in towns, Prof. Bollinger believes it to be of the utmost importance to urge upon all classes, and particularly upon *farmers*, the absolute necessity of taking every possible means of *stamping*

out the disease among cattle. Meanwhile some measure of safety may be secured by the rigid exclusion of all *diseased stock* from town dairies, a measure which forms a prominent feature in the programme of the recently-established Associated Dairy at Munich, where all the cows are constantly kept under skilled veterinary surveillance, and any that may exhibit the least symptom of tuberculosis are at once weeded out.*

There is every reason, therefore, says Fleming, to *prohibit* the use of milk from cows affected with tuberculosis, and especially for *infants*, who mainly rely upon this fluid for their sustenance, and whose powers of absorption are very active. Even if it did not possess infective properties, its deficiency in nitrogenous elements, fat and sugar, and the increased proportion of earthy salts, would alone render it an objectionable article of diet. In fact, it has long been known that it was liable to produce diarrhea and debility in infants; but though many children fed on such milk have died from tuberculosis or a localized type of it in the bowels known as *Tubes mesenterica*, the part probably played by this liquid in its production has rarely been suspected.

He further observes, also, that, as the commencement of phthisis is generally so insidious in the human species, it is most difficult to arrive with any degree of certainty at the causes which directly induce or favor its development; but, from the evidence before us, it is to be feared that at least one of its sources must be referred to the utilization of the *carcass*, but more especially of the *milk*, of phthisical cattle as food. It is certain that tuberculosis is not uncommon and that it is a destructive disease among *dairy* cattle especially, and more particularly those in towns; that the udder of these animals is one of the glands not *unfrequently* involved; that infants and adults consume milk in somewhat large quantities,—and that phthisis is a very prevalent and fatal malady in the human species, and chiefly among the dwellers in towns and cities.†

Dr. Bromley of Lancaster, England, found characteristic tubercular lesion in the pulmonary organs of two pigs, which had been fed with milk of a consumptive cow; while the mother of the pigs, on being slaughtered, exhibited no signs of the disease. And therefore the pigs could not have contracted it by any hereditary influence, but the morbid virus was taken in with the milk.

* *Veterinary Journal*, February, 1880.

† From *The Veterinarian*, vol. 48, p. 202.

Pages 15-16 missing

Hence the necessity of guarding ourselves against such a diseased article of food.

Prof. Gerlach, Dr. Toussaint, and many other veterinary pathologists, have now demonstrated, by hundreds of positive experiments, that this milk is *infectious*, and contains a *specific* virus that can be transmitted from one species of animal to another, and from animal to man,* thus proving the *identity* of this dreaded bovine malady with that in the human subject.

SANITARY REGULATIONS.

The increase and sudden invasions of disease among our stock of late years should awaken new zeal in every farmer, and admonish the whole people of the necessity of having a vigilant inspector in every State, and authorized to act in every emergency. His decision, as a pathologist, should be *final* under all existing circumstances. The public must first be served. Its demands are absolute, and in the well-being of the greatest number the rights of individuals should never interfere. The want of such a sanitary organization has cost this country thousands of dollars on various occasions; and so long as our coast is allowed to remain exposed to the commerce of the world, without a veterinary surgeon at every port, it is purely a matter of chance whether or not we suffer from the malignant diseases of other lands.

Great Britain, after severe and repeated losses of her blooded stock, has seen the necessity of the adoption of such a sanitary measure for home protection. She has accordingly appointed professional inspectors at all the principal commercial points in her vast domain, and very recently, several important stations for pathological observations have been created by the British government. This was a noble move, and in the right direction; and we hope that other nations will follow her illustrious example in behalf of sanitary science. In fact, we need such encouragement everywhere. The general government should at once inaugurate and maintain similar positions in this country.

But we need not search in foreign lands to find a field for veterinary work that is unexplored. We have in the very midst of us

* The fact, as shown by Fox and others recently, that but 25 per cent. of the cases of consumption in man are due to hereditary transmission, while the other 75 per cent. are caused by unsanitary influences, gives increased interest and importance to all other methods by which tuberculosis may be caused. The origin of more or less of this large percentage is doubtless due to infection from milk or meat.—C. W. C.

a malignant disease among the cattle that is publicly almost unknown; and I fear that but few are aware of the increasing prevalence of tuberculosis in our milch cows. The nature of this malady is not well understood by the farmer, nor very much feared, though practically known as consumption. The cow that coughs, grows poor by degrees, even on the best feed, and at last fails in her milk, is frequently turned over to the butcher as the last resort. It is rare that an animal in this country is financially lost from this complaint. Some meat-vender will pick up these creatures at any stage of the disease for slaughter, and thus send the flesh to market: and as cheap lean meat is always in demand among the poorer classes, it is readily disposed of without complaint, whatever may be the ultimate effect of such a diet.

In fact, the traffic in diseased animals has now become so extensive that the State ought to control this matter by more active legislation. The public health has become involved, and the importance of a veterinary inspector, to thus protect our lives and health against the invasion of disease from this source can no longer be questioned. My attention has been called to this subject many times within the last few years, and recently even beyond the borders of this State. Hence, I have felt it my duty to thus publicly warn our people against the baneful practice of consuming the meat and milk of tuberculous animals.

The wide prevalence of this disease among our native herds and thoroughbred stock calls for immediate sanitary regulations throughout the country. Our infant population, and even adults, who are already rendered more or less infirm by their unhealthy surroundings and neglect of domestic hygiene, are now rapidly falling victims to this infectious malady, especially in our larger cities, as statistics show. Hence, in a moral point of view, this extensive invalid class should be protected. The subject, therefore, now demands the vigilant attention of our public authorities and of every sanitarian in the land.

In the absence of statistics, it will be impossible at the present time to estimate with any degree of accuracy the enormous extent to which this disease prevails among our dairy stock. But, if our calculations can be based upon the inspectors' reports in Italy, Bavaria, and other German states, we must conclude that *five* per cent. at least of our bovine animals are now affected, and with every facility for its rapid increase. Prof. Law, from his extensive observations, claims that in certain districts *thirty* per cent. of the

cattle suffer from tuberculosis, and with many high-priced herds this scourge yearly claims its victims.

In fact, Prof. Gerlach, in his experimental researches, was obliged to utterly discard certain strains of thoroughbred swine on account of the astonishing frequency of this disease among them. The sanitary supervision of this affection, therefore, will call for candid consideration and the deliberation of our most enlightened minds and professional experts, to devise and enforce such measures as will protect our tables, control this traffic, and stamp out the disease.



